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DIOPHANTINE ANALYSIS.

60. Proposed by G. B. M. ZERR, A. M., Ph. D., President and Professor of Mathematics in Russell College, Lebanon, Va.

It is required to find three positive numbers, such that if each be diminished by five times the fifth power of their sum the three remainders will be rational fifth powers.

61. Proposed by SYLVESTER ROBBINS, North Branch, New Jersey.

Investigate that infinite series of prime, integral, rational scalene triangles where the sides of every term are consecutive numbers; then take the necessary factors from the proper KEY, and by an expeditious method, find in their order the areas of ten initial terms.

⁂ Solutions of these problems should be sent to J. M. Colaw, not later than March 1.

AVERAGE AND PROBABILITY.

59. Proposed by J. SCHEFFER, A. M., Hagerstown, Md.

A circle is rolling along a horizontal straight line. The uniform velocity of the center is v. Find the average velocity of a point of the circumference.

60. Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics, Drury College, Springfield, Mo.

Four points are taken at random within an ellipse. What is the chance that they form a reentrant quadrilateral.

⁂ Solutions of these problems should be sent to B. F. Finkel, not later than March 1.

MISCELLANEOUS.

58. Proposed by EDMUND FISH, Hillsboro, Ill.

The longest noonday winter shadow of an upright object is found to be seven times as long as the shortest summer shadow of the same object. Required the latitude of the place.

59. Proposed by J. A. CALDERHEAD, M. Sc., Professor of Mathematics, Curry University, Pittsburg, Pa.

When a cylindrical china jar, standing upon the ground, receives the sun's rays obliquely, a bright curve is observed to form itself at the bottom of the jar, and it is found that the shape and dimensions of this curve are not affected by the varying elevations of the sun: account for this latter circumstance, and determine the nature of the bright curve. [From *Parkinson's Optics.*]

⁂ Solutions of these problems should be sent to J. M. Colaw, not later than March 1.

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EDITORIALS.

Contributors desiring to have their portraits appear in the next group should send us a good photograph from which the plate is to be made.

We will pay twenty-five cents each for a limited number of Nos. 6 and 11, Vol. II. of the MONTHLY, also fifteen cents for a copy of the October *Cosmopolitan Magazine*.

This number of the MONTHLY is sent to all our old subscribers. Those wishing to discontinue should return this number with their name and address written on the wrapper.

In the February number of the MONTHLY will appear a biography of Bolyai János, by Dr. Halsted. nearly all of which is absolutely new and never before published. Also in addition to Dr. Lovett's valuable article, will appear a New Solution of the Cubic Equation, by Dr. L. E. Dickson.

Dr. Wm. B. Smith, of the Tulane University of Louisiana, informs us that his *Infinitesimal Analysis, Vol. I.* will appear in about two months. Judging from the character of Dr. Smith's previous works, viz., *Introductory to Modern Geometry and Coördinate Geometry*, this work will prove a valuable addition to the literature of the subject.

Prof. W. W. Beman, of the University of Michigan, calls our attention to the fact π was first used to represent the number 3.141592 . . . in Jones' *Synopsis Palmariorum*, London, 1706. This fact seems to have been overlooked by most writers on mathematics as we find the statement that Euler was apparently the first to use the symbol π, *Britannica Encyclopedia*, ninth edition.

The reorganization of the Mathematical Society of Utah took place December 28, 1897, at Provo, electing the following officers : President, W. J. Kerr, President Brigham Young College, Logan, Utah ; Vice President, D. H. Adams, Principal Madison School, Ogden ; Treasurer, G. N. McKay, Principal Lowell School, Salt Lake City ; Secretary, L. M. Gillean, Teacher of Mathematics, Salt Lake High School. The object of the Society is to promote the interest of mathematics in general in the State.

The following letter has been sent us :

To the Editor of THE AMERICAN MATHEMATICAL MONTHLY.

PROPOSED SYLVESTER MEMORIAL.

Sir : May I be permitted to appeal through your columns to all friends and admirers of the late Professor J. J. Sylvester to assist in founding a suitable memoriol in honor to his name and for the encouragement of mathematical science. A movement was inaugurated on this side of the Atlantic soon after his death and it was resolved by the promoters that a fund should be raised for the purpose of establishing a Sylvester Medal to be awarded at certain intervals for mathematical research to any worker irrespective of nationality. For the purpose of carrying out the scheme a strongly representative Internationel Committee has been formed and I should like to take advantage of this opportunity of expressing the great satisfaction which it has given to the promoters to be enabled to include in this Committee so many great and distinguished names from the American Universities. In every case our invitation to join the Committee has been most cordially responded to and the consent has in many instances been accompanied by expressions of the greatest sympathy and encouragement. The list as it stands practically includes the leading mathematicians of the whole world.

It has been estimated that a capital sum of 5000 dollars will be sufficient for the proposed endowment and of this about one-half has already been subscribed here. In appealing to the American public to enable us to complete the desired sum I am in the first place prompted by the consideration that Sylvester's association with the Johns Hopkins University and the leading part which he took in advancing mathematical science in America renders his claim to estimation on the part of the citizens of your country quite a special one. It is but a modest endowment that we are asking for and I am sure that all those who were personally acquainted with him and who realize the great influence which he exerted in raising the intellectual level of every Institution with which he was associated will be glad of this opportunity of coöperating in the movement.

It is proposed that the fund when complete shall be transferred to the Council of the Royal Society of London, that body having undertaken to accept the trust and to award the medal triennially to mathematicians of all countries. I can hardly venture to trespass upon your courtesy to the extent of asking you to print the complete list of our Committee, but for your own information I beg to send a copy herewith. It will be sufficient to state that it comprises the names of President Gilman of the Johns Hopkins University, of Professor Simon Newcomb of Washington, of Professor Willard Gibbs of Yale, of Professor Peirce of Harvard, and many other well known American men of Science. Subscriptions may be sent to and will be acknowledged by Dr. Cyrus Adler, the Smithsonian Institution, Washington, or by Dr. George Bruce Halsted, President of the Academy of Science, 2407 Guadalupe Street, Austin, Texas.

I am, Sir, Yours obediently,

RAPHAEL MELDOLA,

Professor in the Finsbury Technical College, London, England.

Hon. organizing Secretary to the Sylvester Memorial.

December 1897.

BOOKS AND PERIODICALS.

School Algebra Complete. By Fletcher Durell, Ph. D., and Edward R. Robbins, A. B., Mathematical Masters in the Lawrenceville School. 392 pages. 1898. Harrisburg, Pa.: R. L. Myers & Co.

The effort of the authors has been to simplify principles and make them attractive, by showing as plainly as possible the practical reason for each step or process. The theory of the subject is developed by showing that new symbols are introduced into algebra for the sake of definite advantages in representing numbers, and that the fundamental laws governing their use derive their importance from the economies which they make possible